

peas. The animal was full-grown, and of the size of the largest specimens usually seen.

Sometimes I have seen the male with the spur so far thrown back and concealed from view, as at a glance to be taken for the female, and when opened for anatomical examination to be mistaken for one; so that it is not improbable that the large testes resembling pigeons' eggs may have given rise to the notion of the animal laying eggs.

I have no doubt that the Duck-bills make their burrows high in the banks, so as to be out of the reach of the floods which occasionally prevail. Although amphibious in their habits, they require to repose on the dry land, and also to breathe atmospheric air at short intervals of time. Did they not adopt some plan of the kind, they would be destroyed or drowned in their burrows by the floods.

Another very young specimen was kept for three weeks, and fed upon worms; it had a rudimentary spur; it was very tame and easily fed by hand; it died on the 7th of February, and was preserved in spirits.

The plan I propose, besides introducing shell-fish, &c., is to feed them in captivity upon worms, and, if we succeed in keeping them alive in Sydney by that method for three months, to send them in the place of confinement, arranged as before described, to England, keeping them upon the same diet. At all events it is worthy of a trial; and, on quitting Sydney, I left the artificial burrow and other preparations with a person interested in the subject, in order that he might try the experiment.

I have remarked that, when healthy, these animals on emerging from the water are in the habit of cleaning and drying their fur, and seem to pay great attention to their being in a clean and dry condition, and appear also to be fond of warmth. Not long previous to the death of both these animals, I remarked that they did not dry or clean their fur, and I have no doubt that the chilliness produced by that circumstance accelerated their death, as the body—more especially in the male—was not so emaciated as would have been the case had death ensued from starvation.

2. ON THE LONG-TAILED FLYING-OPOSSUM (*BELIDEUS FLAVIVENTRIS*)*, IN A STATE OF NATURE AND IN CAPTIVITY. BY DR. GEORGE BENNETT, F.Z.S.

In November 1858 I received from the district near Broulee, south of Sydney, from a station on the Mooruya River, a young female of this comparatively rare species, and, although so young, found it of a very savage and vicious disposition, spitting, screeching, and growling when handled, accompanying the noise by scratching and biting. The claws were sharp, producing scratches as severe as those of a cat; but the teeth, being as yet only partially developed, were not sufficient to produce much effect. It was evident that any animal displaying such

* See Gould, Mamm. of Austr., pt. 1. pl. 3.

vicious propensities when in so young a state would be formidable and savage when adult, which has been found to be the case. The aborigines, who capture them for food, pull them by the tail from the cavity of the tree, and kill them by dashing their brains out against it before they are able to inflict any injury upon their capturers. The animal, from the conformation of its feet, is evidently intended to live in trees, and therefore when seen on the ground has a very awkward, waddling gait. This is shown but seldom, and then only when it is obliged to walk upon the level surface of the ground. When climbing upon a tree it becomes more independent in character, and it regards the spectator from the top of its perch in a very different manner. It retires either between the forked branches or in the hollow cavities during the day to sleep, and at night passing from one tree to another by flying leaps, aided by its parachute-like membrane, descends to the ground only from unavoidable necessity, such as the trees being so far apart as to render it impossible to traverse the space by leaping. When pursued it takes to the highest branches, and springs from tree to tree with great rapidity, reminding me of monkeys seen in the forests of Singapore, which, when frightened, exhibit a similar degree of activity. It contrives to elude its pursuers by leaps, which, giving an impetus to the body, are very materially aided by the expanded membrane between the fore and hind feet. This enables the animal to pass over a very considerable distance in its leaps. It is surprising to see it passing from branch to branch and tree to tree in the clear and delightful atmosphere of a fine Australian moonlight night, with so extraordinary a degree of skill and rapidity. But I remarked that the flying leaps were invariably downwards in an oblique direction; and that, when desirous of ascending, the creature would climb rapidly, and if overtaken would cling so tenaciously to the bark of the tree, as, while living, to be very difficult of removal.

Having become tamer from confinement, the animal would suffer itself to be handled without scratching and biting as at first, and would lick the hand for sweets, of which it was very fond, and permit its little nose to be touched and fur examined in any gentle manner. But if any one attempted to take it up by the body, it became most violent in temper, biting and scratching with savage rage, at the same time uttering its snarling, wheezing, spitting kind of guttural growl. If caught by the tail it would be more quiet (excepting if held too long in one position), and would spread the membranes as if to save itself from falling. Its beautiful fur above and beneath could be well seen in that position, much better than in the ordinary position of the animal when in action. Although tamer in confinement, it appears devoid of any attachment to those who feed it, for it evinces all the symptoms of dislike at being taken up by the body, whether by a stranger or by the person by whom it has been accustomed to be fed. It is a crepuscular and night animal, sleeping most of the day, coiled up in a circle, with its bushy tail thrown over it like a blanket; but it occasionally wakes up and feeds a little.

It was fed upon milk, raisins, and almonds ; and indeed sweets of all kinds in the form of preserved fruits, as well as loaf-sugar, met with its approbation. It appears to be a very small eater. In its wild state it feeds upon the honey of the blossoms of the *Eucalyptus* or gum-trees, as well as on the tender shoots and seeds. No doubt insects would form a portion of its diet. The length of the animal in its present young state, evidently not full-grown, is from the head to the extremity of the tail 1 foot 10 inches, and the length of the tail alone is 1 foot 2 inches. The upper part of the body is of a greyish-black, with handsome deep black broad lines on the upper part of the head, back, and the edges of the parachute-like membrane. The tail is cylindrical, black, and bushy. The under surface of the body is white, with yellowish-white under the throat and about the centre of the abdomen ; feet deep black, nails white. The muzzle is naked and of a delicate pinkish flesh-colour ; the naked palms of the feet of a similar colour. The ears are naked, semitransparent, and mottled with black. The under side of the membrane between the feet is also of a dirty white colour ; the fur is rather long, loose, and of a soft silky texture, very delicate and fine to the touch. The head is short and broad ; the ears are also broad ; the eyes black, and dull during the day, more brilliant and animated at night, which conveys the idea that it has very imperfect vision during the daylight.

I have before observed that during the day it is sluggish, but at night full of activity. The only time I saw it active during daylight was on the day on which it was taken to the Zoological Gardens. This may have been occasioned by the cage having been much shaken on the road, or perhaps the gloomy atmosphere of London on that day might have led the animal, so accustomed to the clear sky of its native climate, to regard it, although barely noonday, as the approach of night.

In Australia the blacks capture them for food, and having prepared them by singeing the fur, cook them with the skins on, which gives the meat a more delicate and juicy flavour ; but by the colonists they are valued only for their fur, which, in many, for delicacy and beauty, almost equals that of the Chinchilla. This animal traverses the tops of the trees, and passes to the extremity of the outermost branches with the greatest facility. When leaping, it is observed always to ascend a little at the termination of the leap, by which the shock received in coming from a great height is broken.

My captured specimen escaped one night from its place of confinement, and was seen in one of the uppermost branches of a lofty weeping-willow tree, quietly reposing between one of the forks of the larger branches. A boy was sent to climb up the tree to come upon the animal when asleep. By creeping cautiously up he approached the creature without being seen or heard, and, succeeding in seizing it by the tail, threw it down a height of about 60 feet, when by the assistance of its parachute-like membrane it alighted safely upon the ground, and was then readily secured again. It holds a raisin or almond in its fore-paws, licking and nibbling it. It is often seen lying upon its back at the bottom of the cage when feeding, and when

drinking milk holds the small vessel containing it between its fore-paws, lapping the milk as a kitten is observed to do. It is evident, from the fondness of this animal for sweets, that, when the *Eucalypti* are in flower, it subsists upon the honey which the blossoms yield in very large quantities (this honey is in such abundance as to afford subsistence to honey-eating parrots and other birds, as well as to these animals, and also to myriads of insects of various species). When these have disappeared, it lives upon the nuts and young foliage, and also upon insects. It drinks frequently, and will take water, but evinces a decided preference for and thrives best upon milk. I found that it would sometimes eat the young flower buds of the *Eucalyptus*, and was also fond of succulent fruit, such as apricots. Although the formation of its teeth would indicate a mixed diet, yet it never, in a state of captivity, has as yet attempted to eat animal food when given to it.

It left Sydney, N. S. Wales, on the 14th of March 1859 by the overland route, arrived at Southampton on the 27th of May, and was safely deposited in the Gardens of the Society in Regent's Park on the 28th of May, in excellent health and condition, and much grown since it left N. S. Wales.

3. NOTES ON AUSTRALIAN CUCKOOS. BY DR. GEORGE BENNETT, F.Z.S.

The Bronze-winged Cuckoo (*Chrysococcyx lucidus*) very frequently, but it appears not invariably, deposits its egg in the nest of the Fan-tailed Flycatcher (*Rhipidura albiscapa*). I bring before the Society a sketch of a Fan-tailed Flycatcher feeding the young of that species of Cuckoo, from specimens captured at Ryde, near Sydney, and now preserved in the Australian Museum, from which the drawing was made. This Fan-tailed Flycatcher was shot in the act of feeding a young bird in its nest, which, when examined, was found to be the young of the Shining Cuckoo (*C. lucidus*),—the Golden or Bronze Cuckoo of the colonists. The nestling was full-fledged, brown with black markings. It was ludicrous to observe this large bird filling up the entire nest with its corpulent, well-fed body, and receiving the sustenance intended for several young *Rhipiduræ*. We could imagine underneath the nest the skeletons of the former tenants sacrificed to the rearing of this parasitical Cuckoo.

On the morning of the 25th of February, 1859, Mr. Alfred Denison pointed out to me on the lawn in the garden of Government House among the flower-beds a male Purple Warbler (*Malurus cyaneus*) of glowing colours, perched upon a rose bush, and the female in its pale-brown plumage. They were both actively engaged, hopping about and wagging their tails (which they carry generally in an elevated position), in attending to the wants of a young bird much larger than themselves. This was found to be the